When to Use Non-Probability

An evaluation of the use of a non-probability mobile panel in a post-disaster area in comparison to a probability sample

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Suitland, MD

Thomas Brassell, Kristie Healey, James Dayton, Randal ZuWallack

ICF

Dritana Marko, Stephen Linder, Thomas Reynolds

University of Texas Health Science Center at Houston School of Public Health

Presentation Overview

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  - The Challenge
  - Research
  - Current Study
- **Methodology**
- **Results**
  - Non-probability/Probability
  - Displacement
- **Conclusions**

Background – Overarching Study

- **The Health of Houston Survey (HHS) is a comprehensive health survey of City of Houston and Harris County, Texas residents conducted by the University of Texas Health Science Center at Houston School of Public Health (UT Health).**
  - Content – The survey collects data on resident heath status and chronic conditions, health risk behaviors, psychosocial factors, and neighborhood characteristics.
  - Study Design
    - Targeted 6,500 completed interviews; 60% Cell / 40% Landline split
    - Random Digit Dial (RDD); household adult with the nearest birthday; must live in the Greater Houston Area
  - Data collection began on June 8, 2017 but was suspended on August 27, 2017 when Hurricane Harvey (Pre-Harvey) made landfall.
    - ICF completed ~50% of our target interviews

Background – The Challenge

- **Although the study was suspended, there was still a need to obtain data from the community to better understand the impact of the hurricane, and provide aid**

  - Challenges w/ conducting a probability study post-disaster
    - Increased costs for RDD
      - Reduced landline activity due to infrastructure damage
    - Restricted accessibility for mail survey
    - Population displacement may alter stratification estimates
      - Inability to estimate change to Census/ACS population estimate; also impacts weighting
    - Timeline between set up and administration

Background – Research

- **Why non-probability?**
  - Less expensive
  - Geo-targeting
  - Quick setup
  - Engaged respondent base
  - Ability to establish demographic quotas

- **Why mobile?**
  - Primary source of connectivity to the internet post-disaster (Kaigo, 2012)
  - Optimal communication path for government aid (e.g., assistance registration, news updates) - Federal Emergency Management Agency (FEMA) 2013 report

- **Mobile, non-probability panels offer an alternative method for collecting post-disaster data**

Background – Current Study

- **Our study explores the use of a non-probability mobile panel, in comparison to a traditional random digit dial (RDD) study, as a measure of population displacement, and attitudes and health outcomes post-disaster in Harris County, TX.**

- **Key research questions**
  - Can we use a non-probability panel to help assess financial and methodological risks of restarting the probability study?
  - How comparable are the responses from the non-probability panel to the probability study post-Harvey?
  - Can displacement in the non-probability panel be used as a proxy for area displacement post-disaster?

Methodology

- **Non-probability study**
  - Mobile non-probability panel provided by mfour
  - Panelists received the survey via the mfour's mobile app "Surveys on the Go".
    - Survey was specific to the impact of Hurricane Harvey (e.g., flooding, damage, mental/physical health)
    - Panelist profiles provide demographic information
  - Survey was 'pinged' (using smartphone push notifications) to panelists in the Houston area
  - Data collection started on December 20, 2017 and ended January 2, 2018
  - A total of 503 completed surveys were received

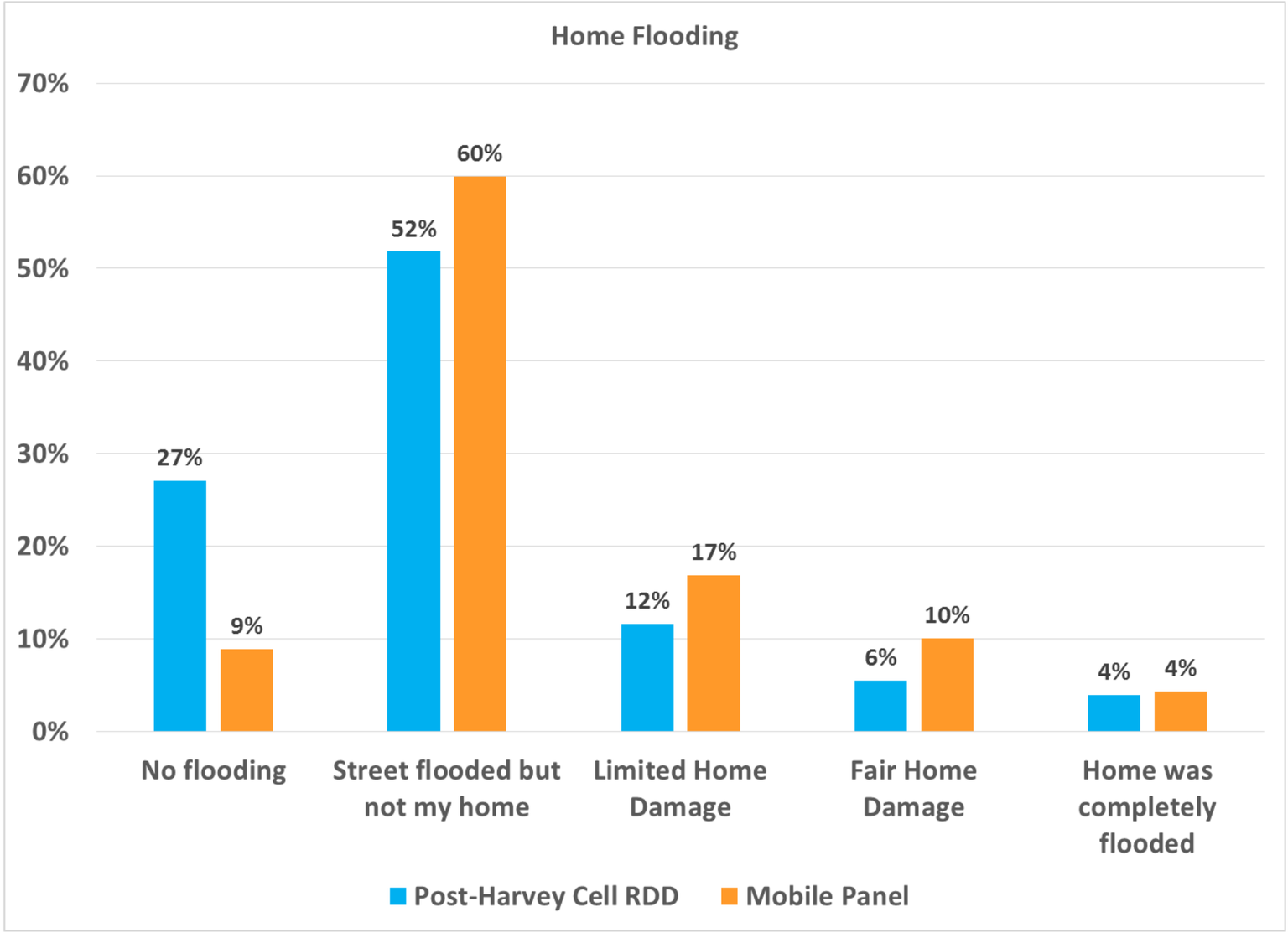
- **Revised post-Harvey RDD methodology**
  - Resumed fielding in February 2018; scheduled to end on April 23rd
  - Methodological revisions
    - Revised Cell / LL proportions, 75% and 25%, respectively
    - Reduced attempts on Cell (8 down to 5) and LL (15 down to 8)
    - Reduced target # of completes to 5,500
    - Incorporated Hurricane Harvey impact items (revised for interviewer administration)

Results – Demographic Comparisons

- **Non-probability panel data was compared to unweighted cell probability data from the telephone survey, both pre- and post-Harvey**
  - Overall, panelists were more likely to be younger, female, non-Hispanic, with some college education and living with at least one child
  - Non-probability panel more closely matched cell respondents compared to landline respondents
    - Comparisons looked exclusively at cell respondents

Results – Post-Disaster Comparisons

- **Non-probability panel data was compared to unweighted probability data from the telephone survey (controlling for demographics had no impact on distributions)**
  - Panelists were more likely to report flooding and damage to homes and vehicles, respectively.
  - Panelists were more likely to have evacuated
  - Panelists reported greater psychological distress



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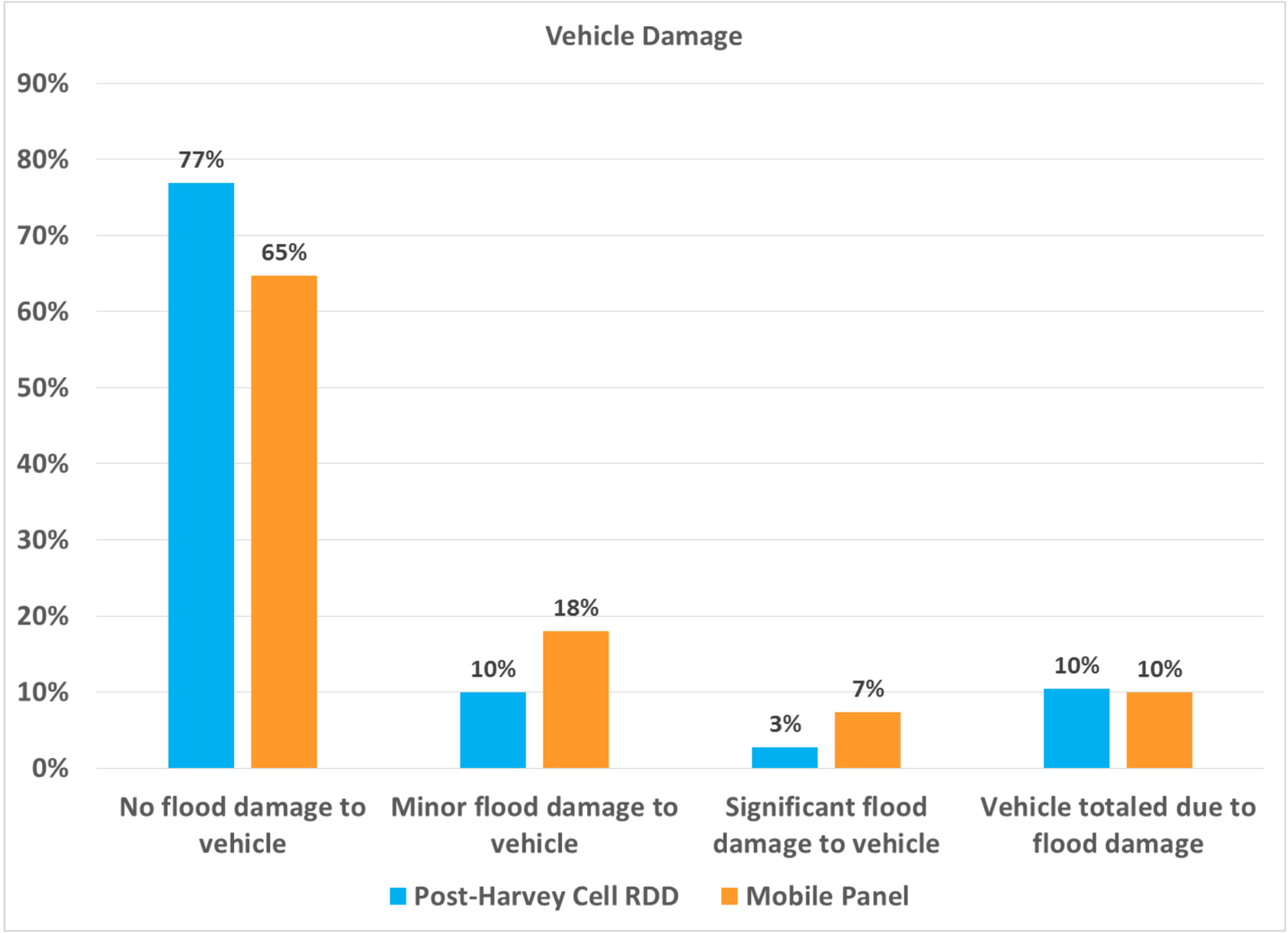

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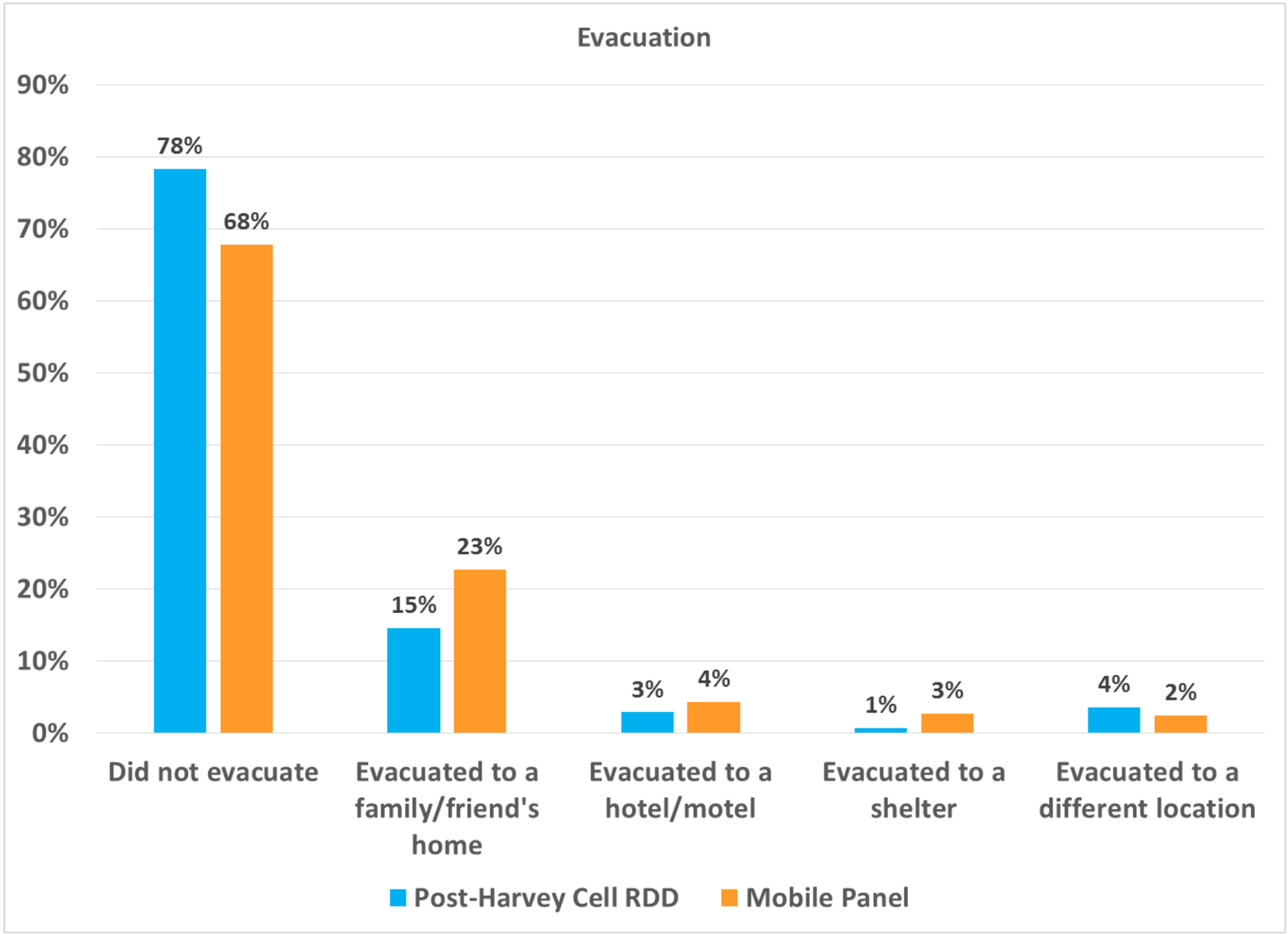

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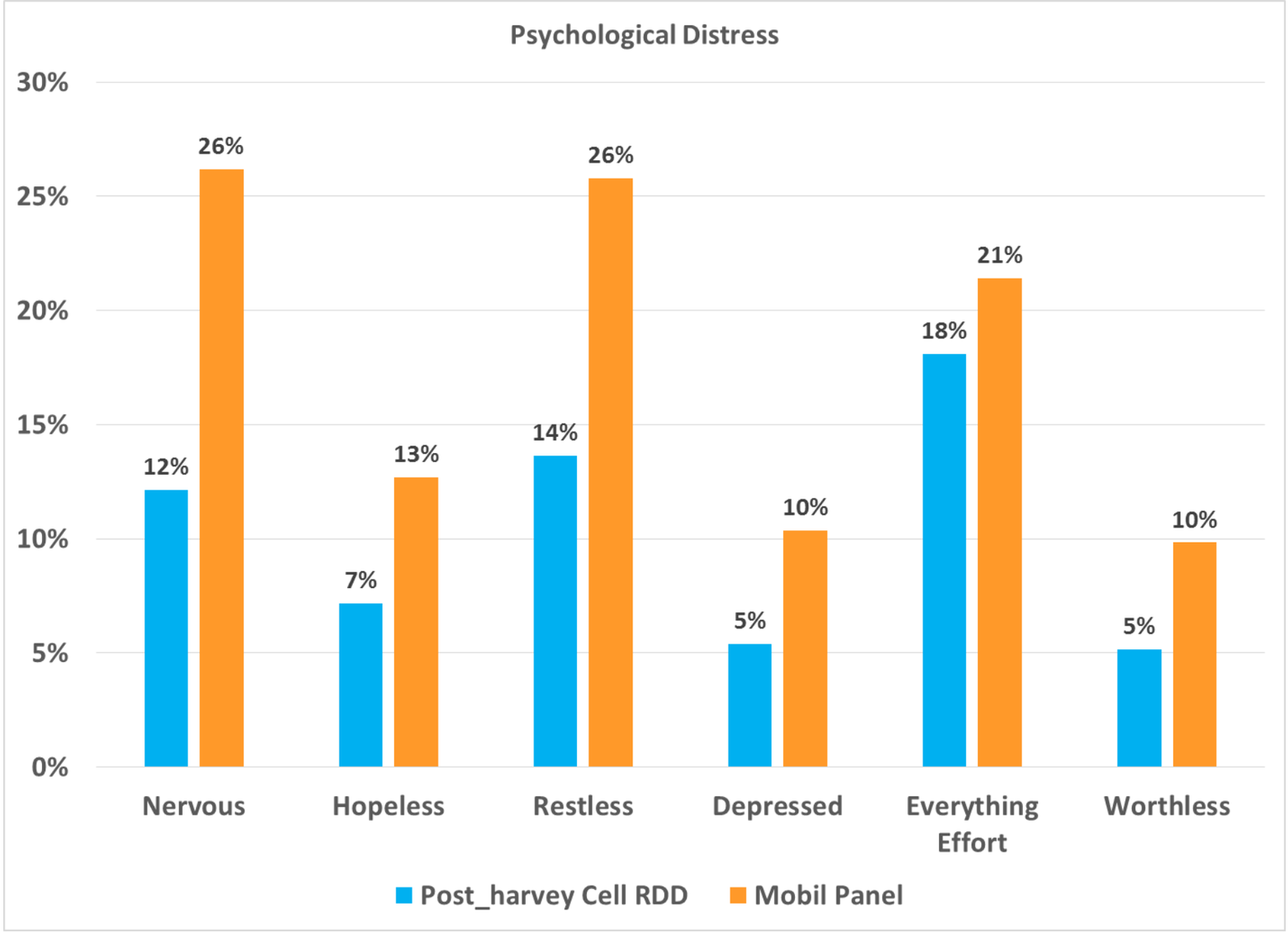

Results

- **Displacement Estimates**
  - Method
    - RDD – Pre- and Post-Harvey (cell and landline) reported demographics were compared
    - Mobile Panel – Pre- and Post-Harvey panel demographic characteristics were compared

  - Neither the RDD nor mobile panel revealed substantial differences in demographic characteristics
    - Survey result from both the panel and RDD results confirmed there was little long-term displacement
    - We hypnotize short-term displacement would have been detected had the study been fielded within weeks of the disaster.
      - Contracting and study design challenges
    - Future disaster displacement measurement can be detected via time-lapse geo-location tracking of panel members

Conclusions

- **Panel demographics skewed younger, more female, less Hispanic, fewer zero children households, and more educated**
  - Quotas can address skew, however controlling for demographic differences did not impact our results
- **Panel respondents reported greater impact from Hurricane Harvey**
  - More exposure to damage, flooding, needing to evacuate, psychological distress
    - Timeline of fielding could have impact on psychological distress results (panel fielded two months earlier)
  - Results suggest more analysis needed, focusing potentially on respondent location in relation to disaster
    - Controlling for sub-geography in addition to demographics
- **Demographic characteristics of RDD and Mobile Panel respondents did not vary significantly pre- and post-Harvey.**
  - Lack of variation does not discount the functionality of using the mobile panel characteristics to track population displacement.
    - Future research should focus on trying to field earlier
    - Utilize time-lapsed geo-tracking of respondents